

Polaris Industries

CASE
SUMMARY

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POLARIS INDUSTRIES, INC.

Spirit Lake, Iowa
Dickinson County

Intern: Jennifer Etheredge
Major: Chemistry
School: Central College



The Agency

Polaris Industries, Inc. has engineering, manufacturing and distribution facilities all across the Midwest, as well as wholly owned subsidiaries in five other countries. It is publicly traded and has more than \$1.5 billion in worldwide sales annually. The Spirit Lake facility produces personal watercraft, all terrain vehicles and Victory motorcycles.

Project Background

Polaris Industries had set a goal to reduce its operational costs by at least \$25,000 within the next year through waste reduction measures. Key areas for reducing waste were identified as the plastic paint department, the wastewater treatment facility and the trash compactor.

Incentives to Change

In addition to reducing operating costs, the company desires to become established in the community as an advocate and an example of environmental stewardship.

Results

Five opportunities for potential annual saving are:

- 1. Solvent Scrubber** – \$20,100. Polaris is testing the use of a solvent scrubber in the plastic paint department. The scrubber causes the paint lines to be cleaned by a turbulent flow purge rather than a laminar flow purge. Solvent usage is reduced considerably, reducing annual purchasing costs by \$13,700 and disposal costs by \$6,400. Purge time is also significantly reduced, resulting in labor savings and production cost savings.
- 2. Recycling Improvements** - \$13,500. Polaris recycles 300 tons of cardboard annually, as well as wood/pallets, scrap metal and some paper. However, a significant amount of paper, cardboard and scrap metal was still going to the landfill, as well as a large amount of plastic. By adding more collection points and educating employees on recycling, the program is well on its way to successfully diverting 42 tons of waste from the landfill and saving \$5,800 annually. To begin recycling plastic, Polaris will need to purchase a baler at a cost of \$3,000. The payback period on the baler is 4.7 months, and annual revenue gained from recycling the 103 tons of plastic would be \$7,700.



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3. Wastewater Treatment Modifications - \$18,100. Polaris sought to improve effluent quality and avoid compliance violations with the local sanitary district by improving its wastewater pretreatment system. The proposed system will reduce sludge waste by 16 drums per year, resulting in \$1,300 in cost-savings of labor and disposal costs. Chemical costs can be reduced by \$11,500, and if negotiations are successful, testing costs could be reduced by \$2,800. Fixing a broken evaporator and using it for only concentrated waste will reduce annual operating costs by \$2,500. If results of further testing prove to be favorable, the system will be put into place.



4. Isopropyl alcohol usage - \$500. Making two simple dispenser changes has the potential to save Polaris \$500 annually from the unnecessary evaporation of 700 pounds of alcohol. The dispenser changes will also significantly reduce fire hazard, resulting in invaluable safety improvements.

5. Pollution Prevention Team - \$25,000. A pollution prevention team has been formed. The team has a goal to reduce operational costs by \$25,000 within the next year by implementing waste reduction opportunities. The team also has a goal to reduce waste by 30 percent in at least two waste streams per year.

Project Summary Table

P2/ Waste Reduction Option	Waste Reduced	Raw Materials Saved	Cost Savings	Status
Solvent scrubber	4,649 gal/year	4,649 gal/year	\$20,100/year	Implementation in progress
Recycling	145 tons	---	\$13,500/year	Implementation in progress
Waste treatment modification	16 drums/year	---	\$15,600/year	Implementation pending
Evaporator	728 gal/year	---	\$2,500/year	Implementation in progress
Isopropyl alcohol usage	100 gal/year	100 gal/year	\$500/year	Recommended
PCI team	---	---	\$25,000	Implemented
TOTALS	6,357 gallons 145 tons	4,749 gal/year	\$77,200/year	

Total opportunities for this business include more than 6,300 gallons of waste reduced, of which more than 4,600 gallons are hazardous. An additional 145 tons of waste can be diverted from the landfill by fully implementing the recycling program.